CURRICULUM VITAE

Tabitha M. Hardy

Education:

Doctor of Philosophy (Ph.D.), Microbiology and Immunology, Indiana University at Indiana University-Purdue University Indianapolis, Indianapolis, IN, 2004- 2010
Concentrations: Cancer Biology and DNA Repair
Dissertation: XPC DNA Repair Protein Regulation in the context of the G1/S Cell Cycle Checkpoint

Master of Science (M.S.), Jackson State University, Jackson, MS, 2002-2004
Concentration: Biology
Thesis: The Effects of Demineralized Bone Matrix Proteins and Osteogenic Protein-1 on Bone Cells Isolated in Culture

Bachelor of Science (B.S.), Alcorn State University, Lorman, MS, 1996-2000
Concentration: Biology Education

Awards and Honors:

2009 Named "Southern Regional Education Board (SREB) -Doctoral Scholar"

2009 "Outstanding Female Student Leader"-IUPUI

2009 Invitation to General Electric (GE) Global Research Technology and Innovation Day, Niskayuna, NY

2008 "Above and Beyond Award" for outstanding service to the department and school, Indiana University School of Medicine, Department of Microbiology and Immunology

2007 Named Edwin T. Harper Scholar, IU School of Medicine, 1R25 GM079657-01 NIH NIGMS Broxmeyer (PI)

2006 Rocky Mountain Bioengineering Symposium, 2nd Place Paper: "The Effects of Demineralized Bone Matrix Proteins and Osteogenic Protein-1 on Bone Cells Isolated in Culture." Doctoral Category and paid registration to the 2007 Rocky Mountain Bioengineering Symposium

Research Experience:

Regulation of XPC DNA Repair Protein in the context of the G1/S Cell Cycle Checkpoint
Principle Investigator: Martin L. Smith, Ph.D., Indiana University School of Medicine, 2008-2010

We are currently researching the DNA repair gene Xeroderma Pigmentosa complement group C (XPC) and its regulation. XPC is a key recognition factor in Nucleotide Excision Repair (NER) responsible for recognizing DNA damage and initiating Global Genomic-Nucleotide Excision Repair. Studies have shown that XPC mutations and deletions are associated with increased sensitivity to DNA damage and increased cancer risk. While it is known that XPC is modified by ubiquitination, the ubiquitin ligase associated with its regulation has not been identified. To this end we will investigate the regulation of XPC and its role in NER and cell cycle and cancer progression via tissue culture transfections, co-transfections, Western blot analysis, host cell reactivation (HCR), and flow cytometry.

Coactivator Associated Arginine Methyltransferase-1 (CARM1) mediation of human mammary epithelial cell immortalization
Principle Investigator: Meei-Huey Jeng, Ph.D., Indiana University School of Medicine, 2005-2008

This investigation utilized retroviral system of transduction to overexpress CARM1 in Human Mammary Epithelial Cells (HMECs). Preliminary data showed that breast cells transfected with CARM1 increased telomerase activity as well as telomere length. We hypothesized that the overexpression of CARM1 protein may be sufficient to extend the lifespan of primary HMECs in culture. This was investigated via primary cell transduction, Western blot, and Telomeric Repeat Amplification Protocol (TRAP). This study is ongoing.

Defining the role of the E7 protein in the Life Cycle of Human Papillomavirus
Principle Investigator: Ann Roman, Ph.D., Indiana University School of Medicine, Summer 2004

This study helped to provide an increased understanding of the E7 protein of high risk (ie. HPV16) and low risk (ie. HPV6) viruses. A mutation of the wildtype HPV6E7 was generated to characterize a potential gain of function required for binding to the tumor suppressor retinoblastoma protein, pRB, family members. These data will help to determine the interaction of the E7 protein in HPV.

The Effects of Demineralized Bone Matrix Proteins and Osteogenic Protein-1 on Bone Cells Isolated in Culture
Principle Investigators: Michelle Tucci, Ph.D., Hamed Benghuzzi, Ph.D. and Joseph A. Cameron, Ph.D., University of Mississippi Medical Center and Jackson State University, 2003-2004

Demineralized bone matrix protein (DBM) has been used to reconstruct bone. Studies have shown that DBM induces new bone formation when it is subcutaneously or intramuscularly implanted. DBX, a type or demineralized bone matrix, is a combination of several different proteins including Osteogenic Protein -1 (Op-1). OP-1 was the first bone morphogenic protein approved for clinical use in the United States. MG63 osteosarcoma cells were treated with high and low concentrations of either DBX or OP-1 and evaluated at different time points for changes in cell morphology, cell damage, cell number, and protein concentration. Results indicate a more substantial increase in bone cell proliferation in cells treated with DBX then in those treated with Op-1. This suggests that DBX provides the most effective treatment for bone cell proliferation.

Teaching Experience:

Teacher's Assistant, Fall 2006
Indiana University School of Medicine, Indianapolis, IN
Course: Nursing Microbiology Laboratory
Responsibilities: taught microbiology lab to 1st and 2nd year nursing students at Indiana University Purdue University Indianapolis (IUPUI), explained and conducted experiments with students, conducted test reviews, formulated and graded test questions

Seventh Grade Classroom Teacher, August 2002-July 2003
Whitten Middle School, Jackson, MS
Course: Integrated Science
Responsibilities: classroom management, developed and executed course syllabus based on state science curriculum, set up and conducted laboratory experiments with students, formulated and graded test questions, conducted and judged Science Fairs, administered state required testing, coordinated field trips, and participated in professional development activities

Eighth Grade Classroom Teacher, August 2000-July 2002
Kate Griffin Junior High School, Meridian, MS
Course: Integrated Science
Responsibilities: classroom management, developed and executed course syllabus based on state science curriculum, set up and conducted laboratory experiments, formulated and graded test questions, conducted and judged Science Fairs, administered state required testing, coordinated field trips, participated in professional development activities, served as hospitality committee chair

Professional Experience:

Underrepresented Professional and Graduate Student Organization (UPnGO) -President (2008-2010) -Social Committee Chair (2007-2008)

Indiana University School of Medicine Student Ambassador

Indiana University School of Medicine Diversity Council (2008-2010)

Indiana University Purdue University Indianapolis (IUPUI) Student Recruiter

Bridges to the Doctorate Program Student Mentor (2005-2010), Senior Ad Hoc Advisory Committee Member (2008-2010)

Research in Progress (RIP) Student Seminar Series-Awards Program Chair (2006-2009)

Search and Screen Committee Member (Student Representative) for the position of Assistant Dean of Graduate Studies (IUPUI)

Indiana University Biomedical Gateway Program Student Mentor

Summer Research Opportunities Program Student Mentor

Department of Microbiology/Immunology Student Mentor

Panelist:

- Life-Health Sciences Internships "Is a PhD for Me?" seminar (September 2007)
- Bridges to the Doctorate Symposium "Why IUPUI is Good for Minorities-Why Minorities are Good for IUPUI" (July 2007)
- Summer Research Opportunities Program "What I wish I had known before starting graduate school" (Summer 2005, 2006, 2007, 2009, 2010)

Abstracts/Conferences Attended:

Tabitha M. Hardy, MA Suresh Kumar, and Martin Smith. "Regulation of the XPC DNA Repair Protein in the Context of the G1/S Cell Cycle Checkpoint." Annual Biomedical Research Conference for Minority Students (ABRCMS) November 2009.

Tabitha M. Hardy, MA Suresh Kumar, and Martin Smith. "XPC DNA Repair Protein Regulation in the Context of the G1/S Cell Cycle Checkpoint." National Organization for the Professional Advancement of Black Chemists and Chemical Engineers (NOBCChe) Regional Conference October 2009.

Abstracts/Conferences Attended continued:

MA Suresh Kumar, **Tabitha M. Hardy**, Karen E. Pollok, and Martin L. Smith. "Selenium protection of bone marrow from carboplatin by a DNA repair and anti-mutagenic mechanism" CRL Summer Research Programs Poster Symposium July 2009.

Publications:

Tabitha M. Hardy, MA Suresh Kumar and Martin L. Smith. RB stabilizes XPC and promotes cellular NER. Anticancer Research. 2010 (Accepted)

Hardy, T., Benghuzzi, H., Russell,G., Cameron, J. A., and Tucci, M. The effects of demineralized bone matrix proteins and osteogenic protein-1 on bone cells isolated in culture. Biomedical Sciences Instrumentation. 42:66-71, 2006.

Joshua L. Fischer, MA Suresh Kumar, Travis W. Day, **Tabitha M. Hardy**, Shari Hamilton, Cynthia Besch-Williford, Ahmad Safa, Karen Pollok, and Martin L. Smith. The XPC DNA repair gene markedly affects cell survival in mouse bone marrow involves the Cul4a/Cdt1 checkpoint. Mutagenesis. Jul; 24(4):309-16, 2009.